

What is claimed is:

1. A method for forming an interlayer dielectric layer, comprising the steps of:

5 a) providing an active matrix on a substrate in a chamber;

b) spraying a silicon source material and a hydrogen peroxide (H_2O_2) in a gaseous state on the active matrix; and

10 c) forming an interlayer dielectric layer on the active matrix by condensation reaction of the silicon source material and hydrogen peroxide (H_2O_2).

2. The method as recited in claim 1, wherein the silicon source material includes a tetra-ethyl-ortho-silicate (TEOS).

15 3. The method as recited in claim 1, wherein the silicon source material includes a modified tetra-ethyl-ortho-silicate (TEOS).

20 4. The method as recited in claim 1, wherein the step of spraying a silicon source material includes supplying simultaneously an inert gas when the silicon source material and the hydrogen peroxide (H_2O_2) are supplied into a flow rate controller.

25 5. The method as recited in claim 1, wherein the step of spraying a silicon source material includes supplying

simultaneously an inert gas when the silicon source material and the hydrogen peroxide (H_2O_2) are supplied into a distributor in the chamber.

5 6. The method as recited in claim 2, wherein the step of forming an interlayer dielectric layer includes adding to the hydrogen peroxide (H_2O_2) and tetra-ethyl-ortho-silicate (TEOS) one or more of boron (B) and phosphor (P).

10 7. The method as recited in claim 1, wherein the step of providing an active matrix includes carrying it out at a temperature and a pressure in the chamber ranging from approximately $-20\text{ }^{\circ}\text{C}$ to approximately $600\text{ }^{\circ}\text{C}$ and approximately 1 Torr to approximately 2 Torr, respectively.

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